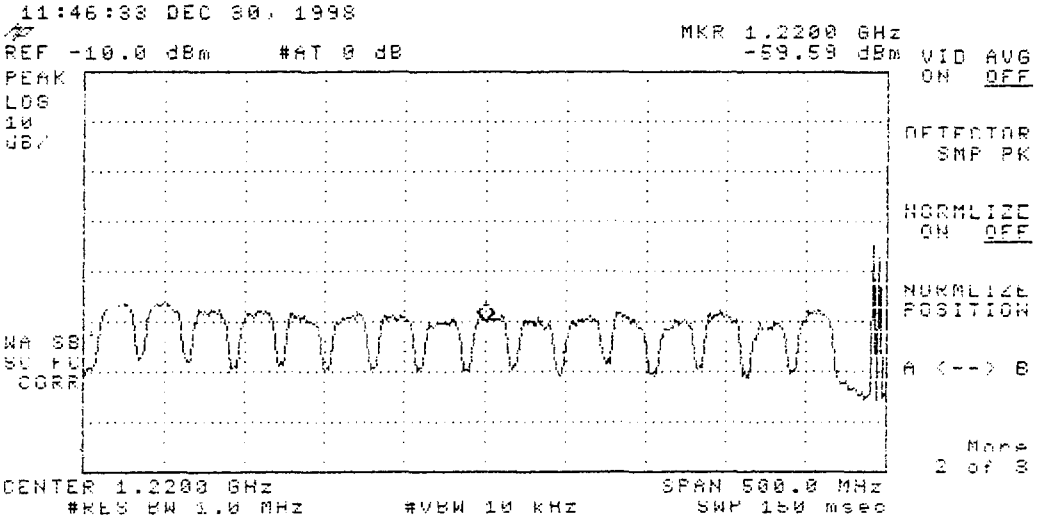
1. DTV w/spikes, 12/20/98, Site-20

2. Boom 9 + 33'

Plot-20-D-1

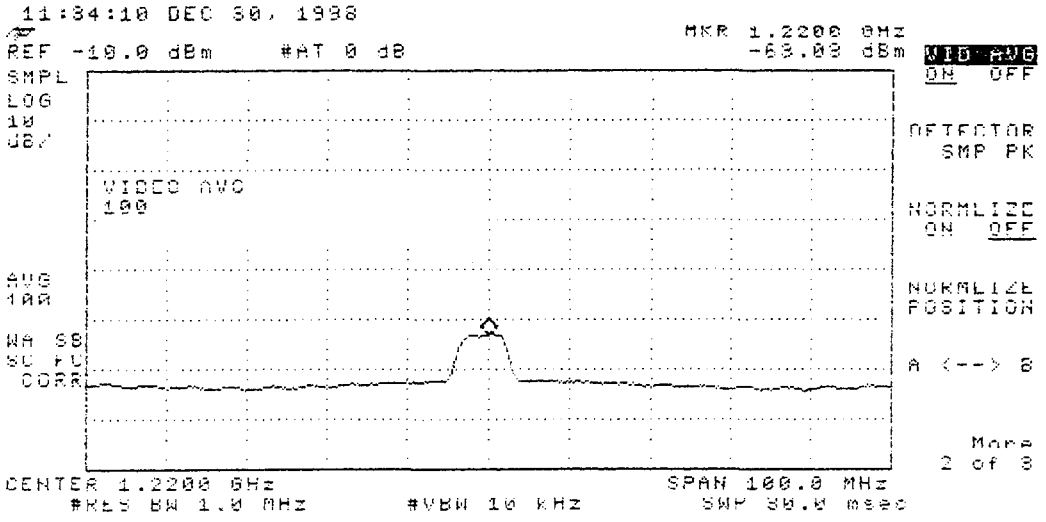


1. Site-20, 12/30/98, Picture good on T.V.

2. Boom at 23', N.P. Tx

3. Used to get over some tree's in the path way.

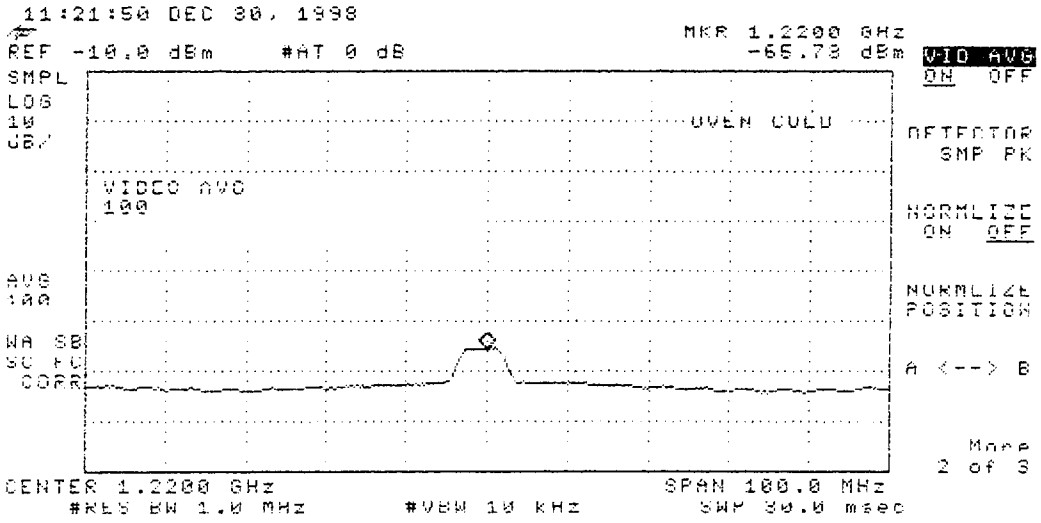
Plot-20-N-1



1. Site-20, N.P. Tx, 12/30/98

2. Boom Down.

Plot 20-N-2



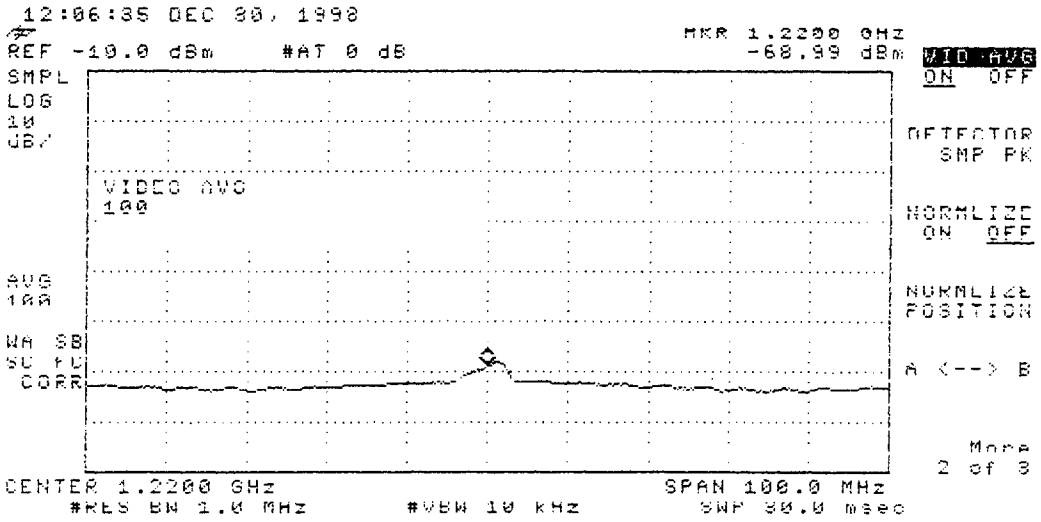

Note: Picture on T.V., But it is kind of jerky, car moving slow.

1. Site-20, 12/30/98, N.P. Tx

2. Reflection off of Texas one Bld.
one with the Armadillo, By Barton Spring Rd.

3. Boom Down

Plot-20-N-R



# COMMENTS FROM SITE 20

Site 20 Fiesta Shores

a. Have one plot of spikes in it, DTV
b. Have three NP plots at different boom levels
c. Have one reflection plot
    1. Reflection off of Texas one building, by Barton Springs Rd.

## Northpoint Technology – DBS Compatiblilty Test – Austin Test Area

**Rx Site Data Log** Summit **Rx Site No.** 21 **p1**
**Set:** 1 1

Re: Rx Condx Ref. No. 2 Date / Time: 12/30/98 2:10 CST

Re: Tx Condx Ref. No. 2 Operator: MWH

---

**Data Measurements:**

(1) On arrival --
- Position and deploy antenna platform (first at ground level).
- Position GPS Receiver and allow to average during site occupation.
- Obtain information for Rx Site Location Log.
- Point Precision Horn Antenna toward Tx (approx. direction).

(2) DBS Signal Interference Tests – DirecTV and EchoStar.

For each satellite case (one at a time), with Tx OFF, point DBS Antenna to the satellite and peak the signal strength. Observe the monitor for the prescribed TV channel (w/ appropriate DBS Rx) and assess signal quality. Turn Tx ON and observe the TV signal quality. Note any change in signal quality that is correlated with the Tx ON/OFF condition. Repeat Tx ON/OFF sequence as needed.

With the Spectrum Analyzer (SA), observe and record the Signal Power Spectrum and its peak value at the LNB output for the two Tx states (ON/OFF). Label the Spectrum Plots and mark them with an assigned ID code.

DirecTV – Tx OFF: OK? Y___ / N ___ Tx ON: OK? Y X / N___

Any behavior correlated with Tx ON/OFF ? Y___ / N___

Comments: _____.

Signal Power Spectrum – Tx ON: --Peak --59.80dBm Plot ID Code 21-D.
Tx OFF: – Peak -- _____dBm Plot ID Code _____.
Comments: _____.

EchoStar – Tx OFF: OK? Y___ / N ___ Tx ON: OK? Y X / N___

Any behavior correlated with Tx ON/OFF ? Y___ / N___

Comments: _____.

Signal Power Spectrum – Tx ON: --Peak --59.42dBm Plot ID Code 21-E.
Tx OFF: – Peak -- _____dBm Plot ID Code _____.
Comments: _____.

## Northpoint Technology – DBS Compatiblilty Test – Austin Test Area

**Rx Site Data Log** Summit **Rx Site No.** 21 **p2**
**Set:** 1 1

(3) Northpoint Signal Quality Test –

With the Tx ON, point the DBS antenna toward the Tx , while using the NP Rx equipment, and peak the signal strength. Observe the monitor (w/ NP Rx equipment) and assess the signal quality.

NP Signal – OK? Y X / N___ Comments: _____.

(4) NP Rx Signal Level and Power Spectrum at Rx Site – LNB output --

With the DBS antenna on the NP Tx, and with the Tx ON, observe and record the Signal Power Spectrum and the peak level at the LNB output. Label the spectrum plot with an assigned ID Code.

Signal Power Spectrum -- Peak -- -50.86 dBm Plot ID Code -- 21-N.

Comments: _____.

(5) Tx Signal Level and Power Spectrum at Rx Site – w/ Precision Ant. and SA.

Using the Precision Antenna and Test Set, observe and record the Tx Signal Power Spectrum and the peak value at the Rx site. Label the spectrum plot with an assigned ID Code.

Signal Power Spectrum -- Peak -- _____ dBm Plot ID Code -- _____.

Comments: _____.

(6) When Rx Site measurements and tests are completed, read the GPS Receiver and record the position in the Rx Site Location Log. Prepare the equipment for movement to the next site.

---

Use the space below for added comments and notes. Attach extra pages if necessary.

**Northpoint Technology – DBS Compatibility Test – Austin Test Area**
**Signal Strength Readings**

**Rx Site Data Log** **Rx Site No.** 21

**Set** 1-1

Re: Condx Ref. No. 2 Date / Time 12/30/98 2:10 CST

Re: Condx Ref. No. 2 Operator: MWH

---

Direct T.V. Signal Strength Readings

| Tsp No | Signal Strength Readings | | | | | | | | | | Avg |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **16** | 86 | 85 | 86 | 85 | 86 | 85 | 86 | 85 | 86 | 86 | 85.6 |
| **18** | 83 | 85 | 85 | 84 | 85 | 83 | 85 | 84 | 86 | 84 | 84.4 |
| **20** | 86 | 86 | 86 | 86 | 86 | 86 | 86 | 86 | 87 | 86 | 86.1 |

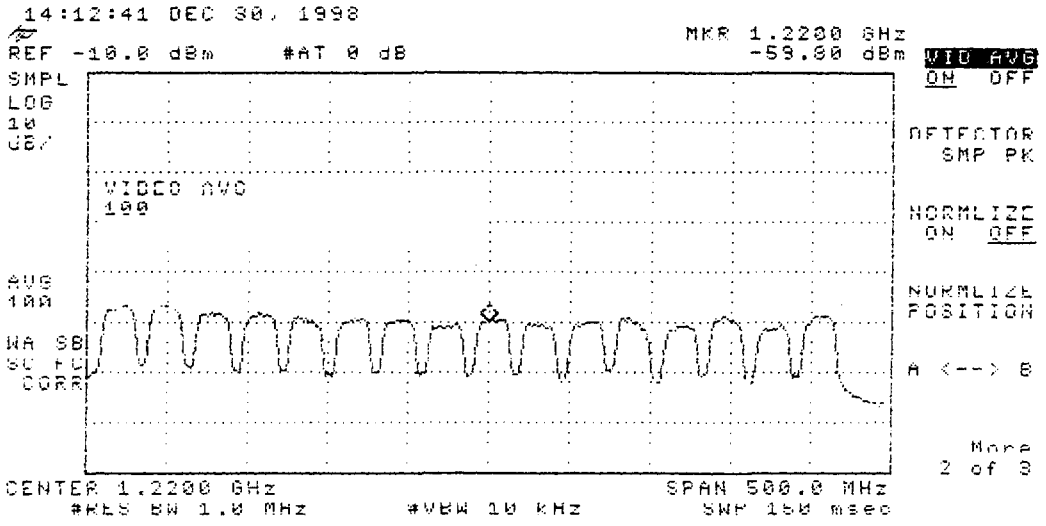
Estar T.V. Signal Strength Readings

| Tsp No | Signal Strength Readings | | | | | | | | | | Avg |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **16** | 89 | 90 | 90 | 89 | 89 | 89 | 90 | 89 | 89 | 90 | 89.4 |
| **18** | 89 | 88 | 89 | 88 | 89 | 89 | 88 | 89 | 87 | 88 | 88.4 |
| **20** | 91 | 91 | 91 | 91 | 92 | 92 | 91 | 91 | 92 | 91 | 91.3 |

Notes: Clear, 65°-70°

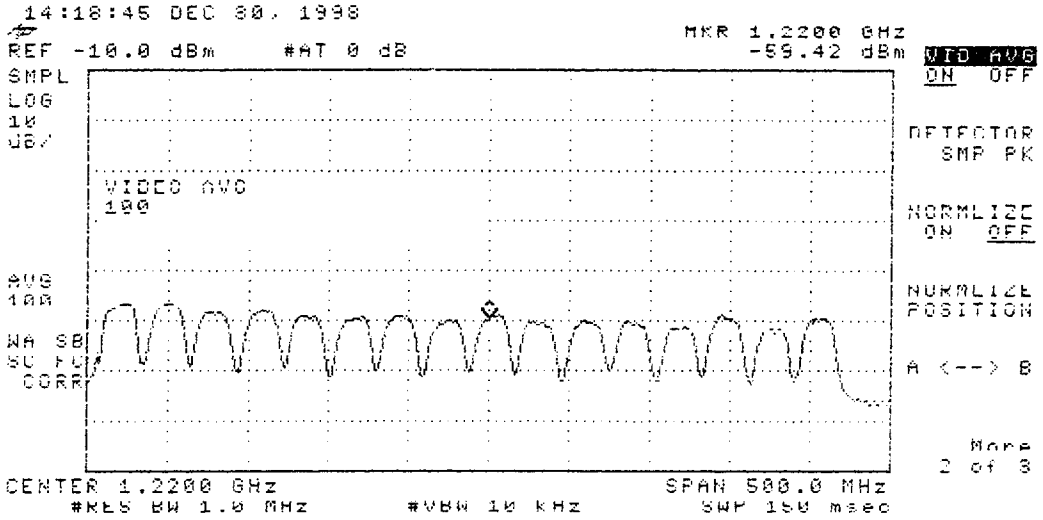
1. DTV, 12/30/98, Boom Down, Site-21

Plot-21-D



1. Estar, 12/30/98, Boom Down, Site-21

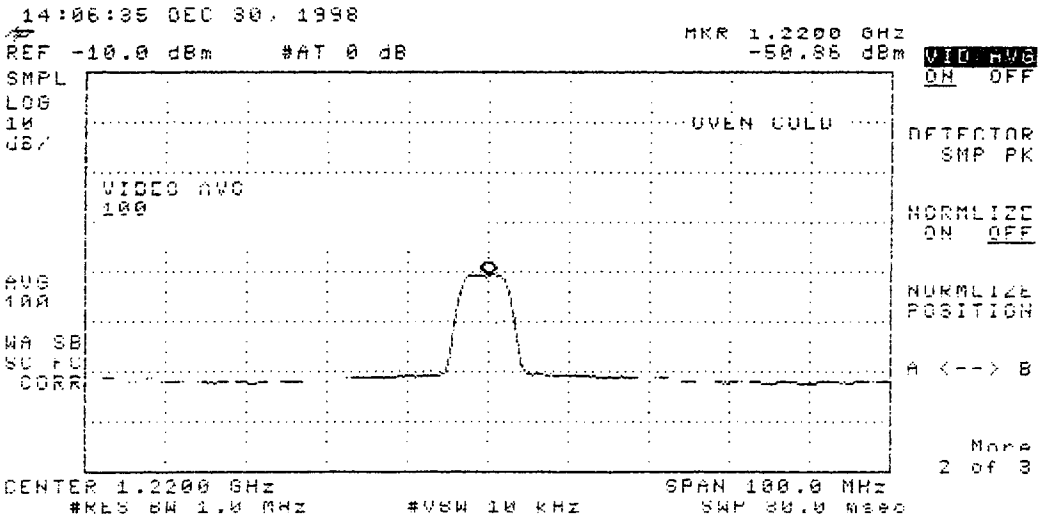
Plot-21-E



1. N.P., Site-21, 12/30/98

Picture Good on T.V., Boom Down

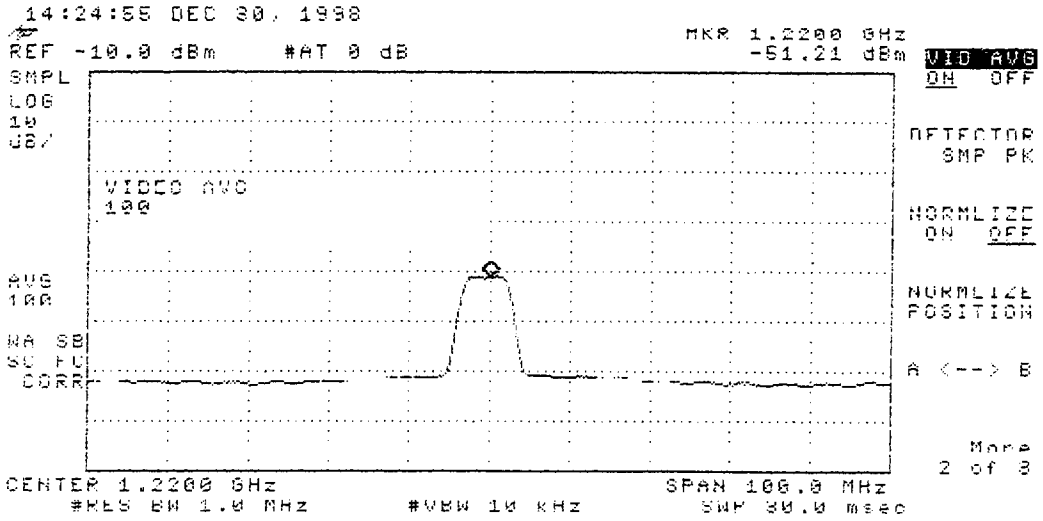
Plot-21-N



1, Site-21, Special graph. Boom Down
12/30/98. Picture Good on T.V.

2. When Boom is up in the leaves, Signal goes away. ≃ 10'

Plot 21-N-S



# COMMENTS FROM SITE 21

Site 21 Summit

a. When boom is up ~ 10', in the leaves, signal goes away

# Northpoint Technology – DBS Compatiblilty Test – Austin Test Area

**Rx Site Data Log** 4th & San Antonio **Rx Site No.** 22 **p1**
**Set:** 1 / ___

Re: Rx Condx Ref. No. 2 Date / Time: 12/30/98 3:04 CST

Re: Tx Condx Ref. No. 2 Operator: MWK

---

**Data Measurements:**

(1) On arrival -- - Position and deploy antenna platform (first at ground level).
- Position GPS Receiver and allow to average during site occupation.
- Obtain information for Rx Site Location Log.
- Point Precision Horn Antenna toward Tx (approx. direction).

(2) DBS Signal Interference Tests – DirecTV and EchoStar.

For each satellite case (one at a time), with Tx OFF, point DBS Antenna to the satellite and peak the signal strength. Observe the monitor for the prescribed TV channel (w/ appropriate DBS Rx) and assess signal quality. Turn Tx ON and observe the TV signal quality. Note any change in signal quality that is correlated with the Tx ON/OFF condition. Repeat Tx ON/OFF sequence as needed.

With the Spectrum Analyzer (SA), observe and record the Signal Power Spectrum and its peak value at the LNB output for the two Tx states (ON/OFF). Label the Spectrum Plots and mark them with an assigned ID code.

DirecTV – Tx OFF: OK? Y___ / N ___ Tx ON: OK? Y X / N___

Any behavior correlated with Tx ON/OFF ? Y___ / N___

Comments: _____

Signal Power Spectrum – Tx ON: --Peak -- -61.85 dBm Plot ID Code 22-D
Tx OFF: – Peak -- _____ dBm Plot ID Code _____

Comments: _____

EchoStar – Tx OFF: OK? Y___ / N ___ Tx ON: OK? Y X / N___

Any behavior correlated with Tx ON/OFF ? Y___ / N___

Comments: _____

Signal Power Spectrum – Tx ON: --Peak -- -59.62 dBm Plot ID Code 22-E
Tx OFF: – Peak -- _____ dBm Plot ID Code _____

Comments: _____

## Rx Site Data Log

**Rx Site No.** 22 **p2**
**Set:** 1 1

(3) Northpoint Signal Quality Test –

With the Tx ON, point the DBS antenna toward the Tx , while using the NP Rx equipment, and peak the signal strength. Observe the monitor (w/ NP Rx equipment) and assess the signal quality.

NP Signal – OK? Y X / N___ Comments: _____.

(4) NP Rx Signal Level and Power Spectrum at Rx Site – LNB output --

With the DBS antenna on the NP Tx, and with the Tx ON, observe and record the Signal Power Spectrum and the peak level at the LNB output. Label the spectrum plot with an assigned ID Code.

Signal Power Spectrum -- Peak --48.20 dBm Plot ID Code -- 22-N.

Comments: _____.

(5) Tx Signal Level and Power Spectrum at Rx Site – w/ Precision Ant. and SA.

Using the Precision Antenna and Test Set, observe and record the Tx Signal Power Spectrum and the peak value at the Rx site. Label the spectrum plot with an assigned ID Code.

Signal Power Spectrum -- Peak --_____ dBm Plot ID Code -- _____.

Comments: _____.

(6) When Rx Site measurements and tests are completed, read the GPS Receiver and record the position in the Rx Site Location Log. Prepare the equipment for movement to the next site.

Use the space below for added comments and notes. Attach extra pages if necessary.

**Northpoint Technology – DBS Compatibility Test – Austin Test Area**
**Signal Strength Readings**

## Rx Site Data Log

**Rx Site No.** 22

**Set** 1 / ____

Re: Condx Ref. No. 2

Date / Time 12/30/98 3:10 CST

Re: Condx Ref. No. 2

Operator: SMWL

---

Direct T.V. Signal Strength Readings

| Tsp No | Signal Strength Readings | | | | | | | | | | Avg |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **16** | 78 | 79 | 79 | 77 | 78 | 78 | 77 | 79 | 79 | 77 | 78.1 |
| **18** | 77 | 76 | 76 | 74 | 74 | 76 | 76 | 74 | 74 | 77 | 75.4 |
| **20** | 79 | 78 | 77 | 77 | 78 | 78 | 78 | 79 | 79 | 80 | 78.3 |

Estar T.V. Signal Strength Readings

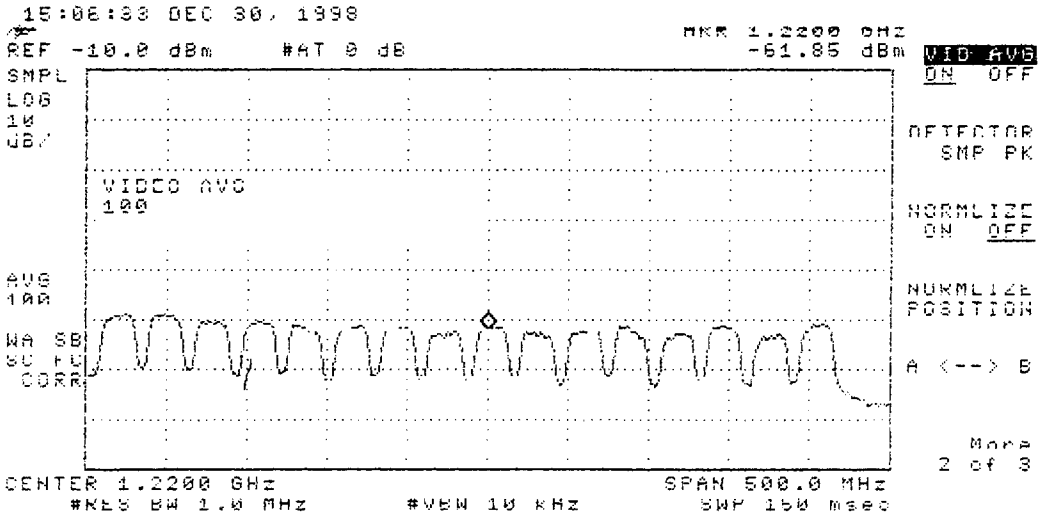
| Tsp No | Signal Strength Readings | | | | | | | | | | Avg |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **16** | 88 | 89 | 88 | 88 | 88 | 89 | 87 | 88 | 89 | 87 | 88.1 |
| **18** | 88 | 87 | 88 | 88 | 88 | 89 | 88 | 89 | 88 | 89 | 88.2 |
| **20** | 90 | 90 | 89 | 90 | 89 | 90 | 90 | 89 | 90 | 91 | 89.8 |

Notes: Estar Point through Power lines & Bld.

1. PTV, 12/30/98, Site-22

Boom Down

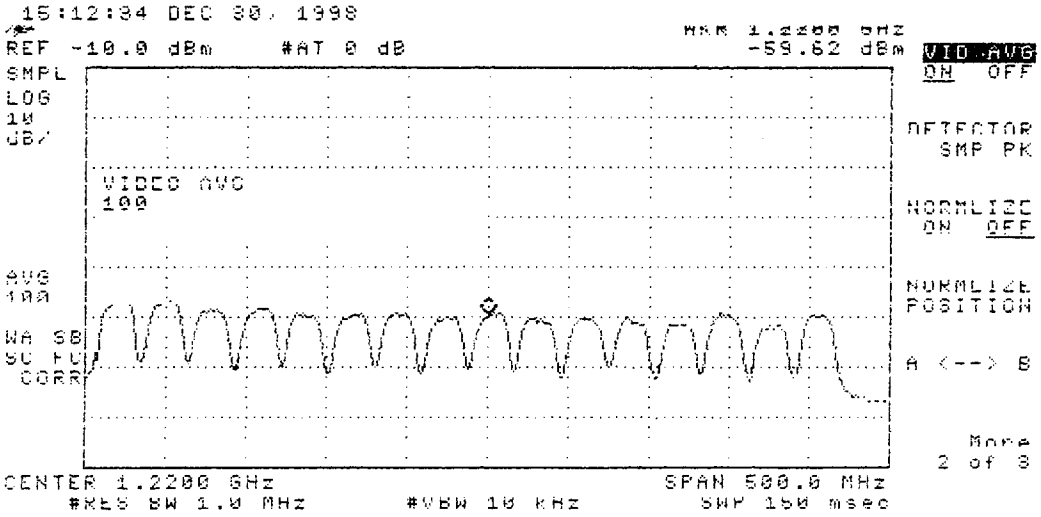
Plot-22-D



1. Estar, 12/30/98, Site - 22

Boom Down

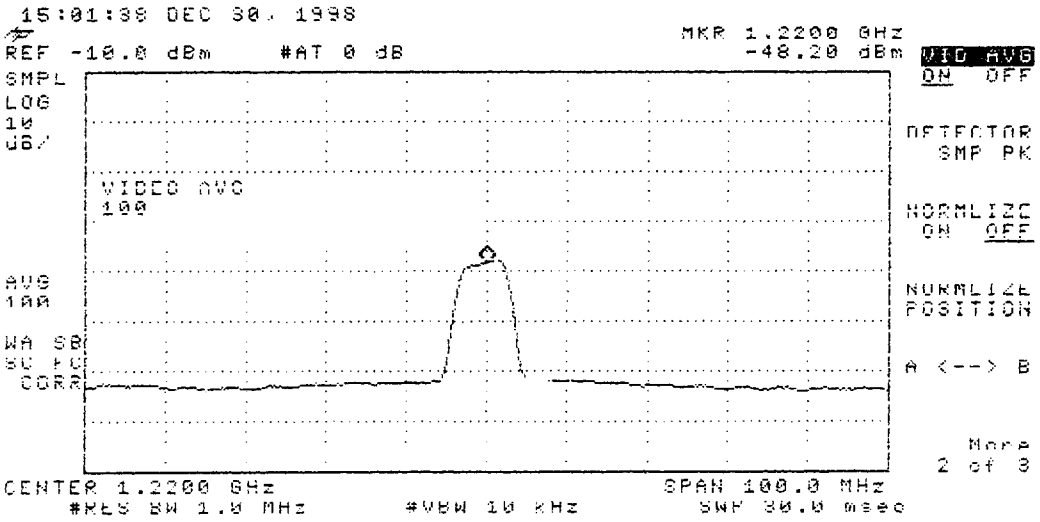
Plot 22-E



I.N.P., 12/30/98, Site-22

Boom Down

Plot 22-N

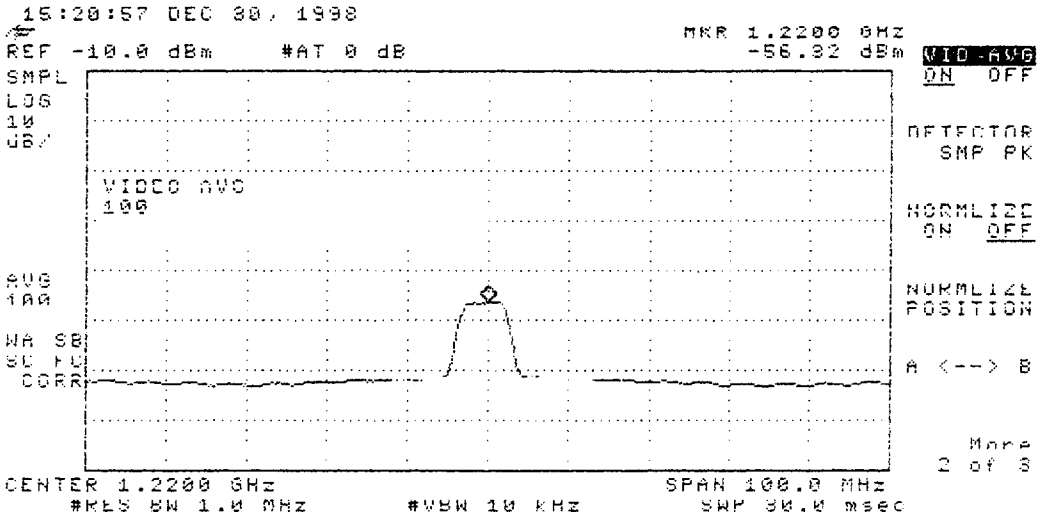


1. N.P., Reflection, Site-22,
Picture Good on T.V.

Pointing at White & Broze Bld.

Boom Down

Plot 22-N-R



# COMMENTS FROM SITE 22

Site 22 4th and SanAntonio

a. Estar pointing through power lines and a building
b. Have one plot of reflection
    1. Reflection is off of white and bronze building

# Northpoint Technology – DBS Compatiblilty Test – Austin Test Area

## Rx Site Data Log

7 & Guadalupe

Rx Site No. 23 p1

Set: 1 1

Re: Rx Condx Ref. No. 2

Date / Time: 12/30/98 3:53 CST

Re: Tx Condx Ref. No. 2

Operator: MWH

---

**Data Measurements:**

(1) On arrival --
- Position and deploy antenna platform (first at ground level).
- Position GPS Receiver and allow to average during site occupation.
- Obtain information for Rx Site Location Log.
- Point Precision Horn Antenna toward Tx (approx. direction).

(2) DBS Signal Interference Tests – DirecTV and EchoStar.

For each satellite case (one at a time), with Tx OFF, point DBS Antenna to the satellite and peak the signal strength. Observe the monitor for the prescribed TV channel (w/ appropriate DBS Rx) and assess signal quality. Turn Tx ON and observe the TV signal quality. Note any change in signal quality that is correlated with the Tx ON/OFF condition. Repeat Tx ON/OFF sequence as needed.

With the Spectrum Analyzer (SA), observe and record the Signal Power Spectrum and its peak value at the LNB output for the two Tx states (ON/OFF). Label the Spectrum Plots and mark them with an assigned ID code.

DirecTV – Tx OFF: OK? Y___ / N ___ Tx ON: OK? Y X / N___

Any behavior correlated with Tx ON/OFF ? Y___ / N___

Comments: _____

Signal Power Spectrum – Tx ON: --Peak -- -60.34 dBm Plot ID Code 23-D

Tx OFF: – Peak -- _____dBm Plot ID Code _____

Comments: _____

EchoStar – Tx OFF: OK? Y___ / N ___ Tx ON: OK? Y X / N___

Any behavior correlated with Tx ON/OFF ? Y___ / N___

Comments: _____

Signal Power Spectrum – Tx ON: --Peak -- -58.96 dBm Plot ID Code 23-E

Tx OFF: – Peak -- _____dBm Plot ID Code _____

Comments: _____

## Rx Site Data Log

Rx Site No. 23 p2
Set: 1 /

(3) Northpoint Signal Quality Test –

With the Tx ON, point the DBS antenna toward the Tx , while using the NP Rx equipment, and peak the signal strength. Observe the monitor (w/ NP Rx equipment) and assess the signal quality.

NP Signal – OK? Y X / N___ Comments: _____.

(4) NP Rx Signal Level and Power Spectrum at Rx Site – LNB output --

With the DBS antenna on the NP Tx, and with the Tx ON, observe and record the Signal Power Spectrum and the peak level at the LNB output. Label the spectrum plot with an assigned ID Code.

Signal Power Spectrum -- Peak -- -50.37 dBm Plot ID Code -- 23-N.

Comments: _____.

(5) Tx Signal Level and Power Spectrum at Rx Site – w/ Precision Ant. and SA.

Using the Precision Antenna and Test Set, observe and record the Tx Signal Power Spectrum and the peak value at the Rx site. Label the spectrum plot with an assigned ID Code.

Signal Power Spectrum -- Peak -- _____ dBm Plot ID Code -- _____.

Comments: _____.

(6) When Rx Site measurements and tests are completed, read the GPS Receiver and record the position in the Rx Site Location Log. Prepare the equipment for movement to the next site.

Use the space below for added comments and notes. Attach extra pages if necessary.

**Northpoint Technology – DBS Compatibility Test – Austin Test Area**
**Signal Strength Readings**

**Rx Site Data Log** **Rx Site No.** 23

**Set** 1-1

Re: Condx Ref. No. 2 Date / Time 12/30/98 3:55 CST

Re: Condx Ref. No. 2 Operator: MWH

---

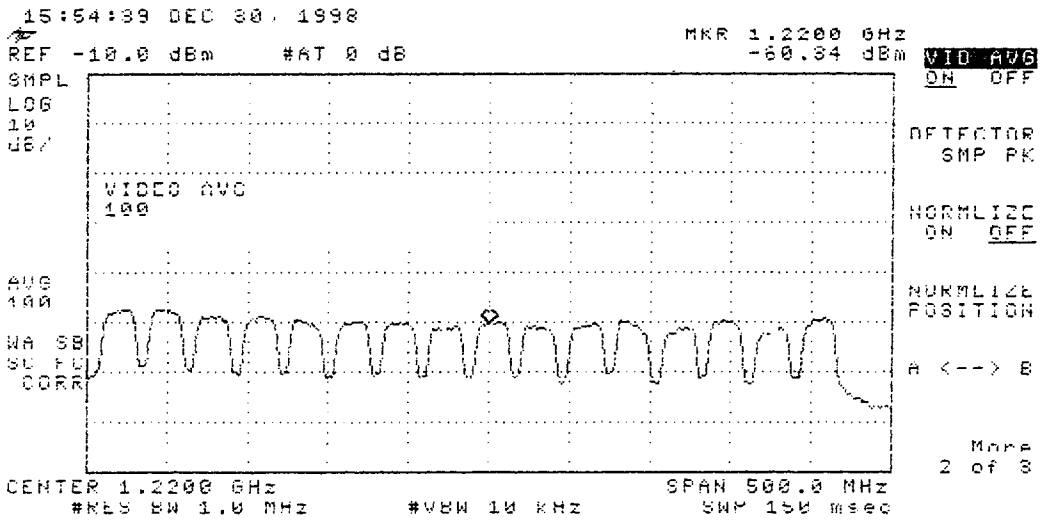
Direct T.V. Signal Strength Readings

| Tsp No | Signal Strength Readings | | | | | | | | | | Avg |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **16** | 85 | 85 | 86 | 86 | 86 | 85 | 86 | 86 | 85 | 86 | 85.6 |
| **18** | 85 | 85 | 85 | 86 | 84 | 85 | 85 | 86 | 85 | 86 | 85.2 |
| **20** | 87 | 87 | 86 | 86 | 85 | 87 | 86 | 86 | 87 | 86 | 86.3 |

Estar T.V. Signal Strength Readings

| Tsp No | Signal Strength Readings | | | | | | | | | | Avg |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **16** | 91 | 91 | 92 | 91 | 92 | 91 | 91 | 92 | 93 | 91 | 91.5 |
| **18** | 90 | 89 | 90 | 89 | 90 | 89 | 89 | 89 | 90 | 89 | 89.4 |
| **20** | 94 | 93 | 94 | 95 | 95 | 94 | 94 | 95 | 94 | 93 | 94.1 |

Notes: Clear - 65°- 70°

1. DTV, 12/30/98, Site-23, Boom Down

Plot-23-D